Lingjie (Jack) Fang

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Education

Purdue University Expected Graduation: May 2027

Bachelor of Science in Computer Science, Double Major in Mathematics *GPA: 3.8/4.0*

- Dean's List, Semester Honors, Putnam Top 550 (x2)
- **Relevant Coursework**: Data Structures and Algorithms, Computer Architecture, Systems Programming, Software Engineering, Databases, Object-Oriented Programming, Discrete Mathematics, Linear Algebra

Experience

Software Engineer Intern July 2025 – Aug 2025

Fire Department of New York *New York, NY*

- Reduced medical report classification time for doctors by **14%** by automating the categorization of AI model failures with an end-to-end machine learning pipeline built with PyTorch and MLflow
- Increased dataset size by over **420%** to address data scarcity by developing an LLM-based data synthesis solution
- Fine-tuned a suite of BERT-based language models, achieving **86.4%** accuracy on a novel text classification task
- Deployed a **FastAPI** endpoint to serve model inference, enabling seamless integration with frontend dashboards

Undergraduate Teaching Assistant Jan 2025 – May 2025

Purdue University *West Lafayette, IN*

- Led structured weekly practice sessions for **20+** students in CS 182: Foundations of Computer Science to help students learn discrete mathematics topics like time complexity, recursion, graph theory, and number theory
- Hosted weekly office hours to provide support on problem sets and clarify core discrete mathematics concepts
- Graded weekly homework for **200+** students, providing targeted feedback to improve student understanding

Projects

Movie Guru | *React, Python, FastAPI, AWS, Docker, Redis, ChromaDB, OpenAI* July 2025 – Aug 2025

- Engineered a full-stack web application that provides intelligent movie recommendations using a **RAG pipeline**
- Developed a FastAPI backend that uses **OpenAI's GPT-5** to contextualize movie data from a ChromaDB store
- Provisioned and managed cloud resources on **AWS**, including ElastiCache for Redis and S3 for raw data storage
- Reduced the runtime of the S3 data ingestion pipeline by **93.7%** through Redis caching and concurrent uploads

Pixel Mapper | *React, Node, Express, PostgreSQL, OAuth 2.0* June 2025 – July 2025

- Developed a **full-stack** application that transforms user-uploaded images into custom Google Sheet pixel art
- Integrated a backend using Node and Express to process images and color spreadsheet cells via the **Sheets API**
- Secured the application using **Google OAuth 2.0** and managed persistent user sessions with PostgreSQL
- Built a responsive and intuitive UI/UX using **React** that communicates to the backend through REST APIs

PocketPad App | *Swift, Python, SwiftUI, XCTest* Feb 2025 – May 2025

- Developed an **iOS app** that emulates video game controllers, enabling users to play console games on their PC using only their phone in an Agile Scrum team of 6 developers
- Implemented functionality on a **Swift** frontend to send D-Pad, button, and joystick inputs to a Python backend
- Engineered input customization features with dynamic visual feedback using **SwiftUI**, such as a macro recorder system, configurable joystick dead zones, and specialized turbo buttons
- Built an automated unit testing and UI testing suite with **XCTest** and integrated it with a **CI/CD** pipeline

Embedded Logger System, Purdue Space Program | *C++, Teensy* Oct 2024 – Nov 2024

- Architected a robust **C++** logging library for a Teensy-based rocket flight computer for autonomous flight
- Implemented configurable log levels, hierarchical sub-loggers, and multiple output destinations for user flexibility
- Optimized logging on a memory-constrained **Teensy** microcontroller using a custom binary serialization system
- Created a companion **C++** desktop tool to parse binary log files into CSV files for offline analysis of flight data

Technical Skills

Languages: Python, JavaScript, HTML, CSS, Swift, Java, C, C++, SQL, Bash, Assembly
Frameworks/Libraries: React, Node.js, Express.js, FastAPI, SwiftUI, XCTest, PyTorch, HuggingFace, MLflow
Tools: Git, GitHub, AWS, Docker, PostgreSQL, Redis, ChromaDB, OpenAI, Linux, CI/CD, RESTful API, Agile, Scrum